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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/501,567

07/12/2004

Matthias Lenzner

206,595

2527

38137 7590 07/09/2008  
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EXAMINER

FARAH, AHMED M

ART UNIT

PAPER NUMBER

3735

MAIL DATE

DELIVERY MODE

07/09/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/501,567	<b>Applicant(s)</b> LENZNER ET AL.	
	<b>Examiner</b> Ahmed M. Farah	<b>Art Unit</b> 3735	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 22,24,25,27,28,31-35,37 and 39-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 35,37 and 39-42 is/are allowed.
- 6) ☒ Claim(s) 22,24,25,27,28,31,34 and 43 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

**Note:** please note the following minor informalities in the specification:

- The sentence “The laser most commonly used in the excimer laser” in page 1, lines 10-11 contains a typographical error. Correction such as --  
The laser most commonly used is the excimer laser--.
- The third paragraph of page 2 (page 2, lines 13-14) needs to be modified or completely deleted because neither claim 1 nor claim 14 are pending in the application, and if the application goes to issue, the final claim numbers might be different.

Appropriate corrections are required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase “Not Applicable” should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.

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(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(g) BRIEF SUMMARY OF THE INVENTION.

(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(i) DETAILED DESCRIPTION OF THE INVENTION.

(j) CLAIM OR CLAIMS (commencing on a separate sheet).

(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 22, and dependent claims thereof (claims 24, 25, 27, 28, and 31-33) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 recites "a first optical output (7)" and "a second optical output (9)." The claim further recites "laser beams emitted from the optical output (7)" in lines 5-6 and line 8.

Correction, such as -- laser beams emitted from the **first** optical output (7)-- is suggested.

Claim 22 recites the limitation "the other optical" in line 9. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 22, 24, 27, 31 rejected under 35 U.S.C. 102(b) as being anticipated by Zavislan et al. US Patent No. 5,995,867.

As to claim 22, Zavislan et al. disclose a surgical laser system comprising:

a first laser beam source (**12**) with a first optical output for generating femto-second pulse laser beams (see Fig. 2 and col. 6, lines 33-40);

a second laser beam source (**42**) with a second optical output for UV laser beams (see col. 6, lines 45-55); and

a shared scanner device (rotating mirror **16**, galvanometer mirror **20**) for scanning a target object using fs-pulse laser beams emitted from the first laser source and UV laser beams emitted from the second laser source;

wherein there is at least partial overlap between a first optical path followed by the fs-pulse laser beam to the shared scanner device (**16,20**), and a second optical path followed by the UV laser beam to the shared scanner device (**16,20**), so that a shared part of the first and second optical paths (**17, 23**) is formed; and wherein the shared scanner device (**16,20**) comprises an optical guidance mechanism for guidance both of the fs-pulse laser beam and of the UV laser beam.

As to claim 24, the surgical system further comprises optical components (lenses 18,19,21,23) for locking/focusing the laser beams from said first and second laser sources into the shared part of said shared optical paths (**17,23**) as claimed.

As to claims 33, the recited claim language is devoid of any functional and/or structural limitations. It is directed to intended use of the claimed device and, therefore, is not given a patentable weight.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 25, 28, 33 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zavislan in view of Kang, Pub. No. US 2002/0054613 A1.

Jacob US Patent No. 6,373,869.

Zavislan et al., described above, fail to teach the use of safety mechanism disposed in the optical path, a pumping source shared by the two lasers, a fiber laser source, or a frequency mixer for generating UV laser beams as recited in claims 25, 28, 33, and 42, respectively. As to claim 25, the examiner notes that the use of safety mechanism such a beam shutter disposed in an optical beam path is well known in the art.

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As to claims 28 and 33, the examiner further notes that the use of diode-pumped laser source comprising a fiber laser is also known in the art. Kang teaches the use of diode pumped fiber lasers is well known in the art as follows:

"So-called fiber lasers are known which use a length of doped optical fiber as the lasing cavity and thus provide some advantages over other types of lasers such as excimer, semiconductor diode and solid state laser . . .

Fiber lasers can also be pumped with 980 nm laser diodes which exhibit a long lifetime; allowing very low levels of required maintenance."

See Kang, paragraph [0007] .

As to claim 43, the examiner further notes that the technique for mixing different frequencies to produce an ultraviolet light is also known in the art. Kang discloses an alternative method for generating ultraviolet laser light by frequency mixing. He uses a frequency mixer to combine wavelengths of second harmonic light to generate an UV light with a desired wavelength. Kang further teaches the following:

"Based on [these] predicted conversion efficiencies, and assuming a non-linear conversion efficiency of 80% for both the second harmonic generation and the sum frequency mixing, and the average wall-plug efficiency of 20% for the fiber lasers, a wall-plug efficiency of up to 13% is expected for the UV light system of FIG. 1 according to the present invention. This system allows the tuning of UV output wavelengths between about 307 nm and about 325 nm, simple frequency triplet and quadruplet can produce other wavelengths around 354 nm, 266 nm and 384nm."

See Kang, paragraph [0025].

Therefore, at the time of the applicant's invention, it would have been obvious to one of ordinary skill in the art to modify Zavislan et al. in view of Kang to and use a sum frequency mixer to combine different frequencies/harmonics of light generated by fiber lasers to provide ultraviolet light as presently claimed. Fiber lasers provide advantages over excimer lasers that are mainly used for generating the UV light. Specifically, fiber lasers are light weight, inexpensive, compact, and small in size compared to excimer

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lasers. They exhibit low signal to noise ratio, good stability, and narrow bandwidth, while being broadly tunable.

### ***Allowable Subject Matter***

Claims 35, 37 and 39-42 are allowed.

Claim 32 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See the following references:

- US Patent No. 6,373,869 to Jacob discloses an alternative laser system and method for generating ultraviolet laser light by frequency mixing. Jacob uses a frequency mixer to combine wavelengths of second harmonic light to generate an UV light with a desired wavelength (see the abstract, Figs. 1-4, and col. 3, lines 40-52).
- US Patent No. 5,035,693 to Kratzer et al. discloses a medical laser apparatus comprising a plurality of laser source 1, 3, and a common scanning system 2 adapted to scan laser beam over a desired tissues, wherein the light beams from the laser source have at least one shared optical path prior to reaching the scanning system (see the abstract and Fig. 2).



Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ahmed M. Farah whose telephone number is (571) 272-4765. The examiner can normally be reached on Mon, Tue, Thur and Fri between 9:30 AM 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marmor II Charles can be reached on (571) 272-4730. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ahmed M Farah/  
Primary Examiner, Art Unit 3735

July 1, 2008.